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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/830,687	06/25/2001	James Aldis	2360-0340P	9933

2292 7590 06/07/2004

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EXAMINER
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PATHAK, SUDHANSHU C

ART UNIT	PAPER NUMBER
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2634

DATE MAILED: 06/07/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/830,687

Applicant(s)

ALDIS, JAMES

Examiner

Sudhanshu C. Pathak

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on June 25<sup>th</sup>, 2001.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-4 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,3 and 4 is/are rejected.
- 7) ☒ Claim(s) 2 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on June 25<sup>th</sup>, 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_

### DETAILED ACTION

1. Claims 1-to-4 are pending in the application.

#### *Drawings*

2. Figures 1, 4a-b should be designated by a legend such as "Prior Art" because only that which is known is illustrated.
3. Figures 1, 2, should have each element labeled with an element number as shown in the elements in Figures 5-6, such as "18".
4. Figures 2, 5-6, should have an element descriptor labeling each element discloses, as shown in Figure 1, such as "FB".

Corrective Action is required for all drawing objections.

#### *Specification*

5. Applicant is reminded of the proper content of an abstract of the disclosure.

**A patent abstract is a concise statement of the technical disclosure of the patent and should include that which is new in the art to which the invention pertains.** If the patent is of a basic nature, the entire technical disclosure may be new in the art, and the abstract should be directed to the entire disclosure. **If the patent is in the nature of an improvement in an old apparatus, process, product, or composition, the abstract should include the technical disclosure of the improvement.** In certain patents, particularly those for compounds and compositions, wherein the process for making and/or the use thereof are not obvious, the abstract should set forth a process for making and/or use thereof. If the new technical disclosure involves modifications or alternatives, the abstract should mention by way of example the preferred modification or alternative.

**The abstract should not refer to purported merits or speculative applications of the invention and should not compare the invention with the prior art.**

Where applicable, the abstract should include the following:

- (1) if a machine or apparatus, its organization and operation;
- (2) if an article, its method of making;

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- (3) if a chemical compound, its identity and use;
- (4) if a mixture, its ingredients;
- (5) if a process, the steps.

Extensive mechanical and design details of apparatus should not be given.

6. The specification on Page 3, line 38 refers to the element "DD" as describe din Figure 1, however it refers to the element in the figure as a "decision devide" this should actually be "decision device".
7. The specification on Page 5, lines 26-27 defines the variable " $g_1^R$ " used in Equation (II), as the real part of the filter coefficients of the "feedforward" part of the DFE, this should actually be the "feedback" part of the DFE as defined on Page 5, lines 9-12 of the specification.
8. The specification on Page 8, lines 16-19 refers to Fig. 6 wherein the output of the sampler is multiplied by a phase factor " $j^b$ " before being fed into the DFE, but in the specification on Page 10, line 33, again referring to Figure 6, discloses multiplying the signal by a phase factor of " $j^{-1}$ " before being fed to the DFE, this is further disclosed in the Specification on Page 11, line 4 & line 20. Therefore, the in compatibility between the multiplication factors either " $j^b$ " or " $j^{-1}$ " should be resolved.

Corrective Action is required for all specification objections.

***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

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(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1 & 4 are rejected under 35 U.S.C. 102(b) as being anticipated by Tu (Optimum MMSE Equalization for Staggered Modulation; ASILOMAR Conference; November 1-3, 1993; Pages 1401-1406).

Regarding to Claims 1 & 4, Tu discloses a method and circuit for equalizing a received signal in a digital receiver with the aid of a DFE structure (Page 1401, Abstract, lines 1-19 & Page 1402, Fig. 2); the received signal being base on a signal constellation, which is one-dimensional or can be transformed to be one-dimensional (Introduction, Page 1401, Column 1, lines 1-13 & Introduction, Page 1401, Column 2, lines 13-17 & Fig. 2 & Optimum MMSE Equalization for Staggered Modulation, Page 1403, Column 1, lines 1-35); characterized in that the coefficients of the DFE are fixed so as to minimize the expected value of the squared real part of the error in the received signal (Introduction, Page 1401, Column 2, lines 3-17 & Optimum MMSE Equalization for Staggered Modulation, Pages 1402-1404).

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tu (Optimum MMSE Equalization for Staggered Modulation; ASILOMAR

Conference; November 1-3, 1993; Pages 1401-1406) in view of Gardner et al. (WO 98/16021; Signal Processing Apparatus Employing the Spectral Property of the Signal).

Regarding to Claim 3, Tu discloses a method and apparatus for equalizing a signal in a digital receiver with a DFE structure based on a one dimensional constellation received signal or a transformed one dimensional signal wherein the coefficients are determined so as to minimize the expected value of the squared real part of the error as described above. Tu further discloses the signal constellation to correspond to a GMSK modulation (Abstract, Page 1401, lines 1-19 & Introduction, Page 1401, Column 1, lines 1-16 & Background: Staggered Modulation, Page 1401, Column 2, lines 1-13). However, Tu does not disclose that the received samples rotated in the receiver with a phase " $j^{-1}$ ".

Gardner discloses a method and apparatus for separating and removing distortion in GMSK modulated signals implemented using adaptive filtering structures (Abstract, lines 1-7). Gardner further discloses that the sampled signal is rotated in the receiver with a phase " $j^{-1}$ " (Page 20, lines 8-to-Page 22, lines 9 & Fig.'s 8, 10, 12, 13). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention that Gardner teaches rotating the sampled signal with a phase " $j^{-1}$ " and this can be implemented in the GMSK received signal in the digital receiver as described in Tu so as to improve the quality of the received signal by suppressing the adjacent-

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channel interfering of the received GMSK signals, thus satisfying the limitations of the claim.

***Allowable Subject Matter***

5. Claim 2 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sudhanshu C. Pathak whose telephone number is (703) 305-0341. The examiner can normally be reached (Monday-Friday from 8:30 AM to 5:30 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Chin, can be reached at (703) 305-4714.

Any response to this action should be mailed to:

- Commissioner of Patents and Trademarks Washington, D.C. 20231

Or faxed to:


- (703) 872-9314 (for Technology Center 2600 only)

Hand-delivered responses should be brought to:

- Crystal Part II, 2121 Crystal Drive, Arlington, VA, Sixth Floor  
(Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to:

- Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.



STEPHEN CHIN  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2600